Report of the NRCB/CEAA Joint Review Panel
Application #9801 – Alberta Transportation
June 2001

Highwood Storage and Diversion Plan
Review of Progress Toward
Meeting Board Order 9601-1

NRCB
Natural Resources
Conservation Board

Canadian Environmental Assessment Agency
Agence canadienne d'évaluation environnementale

Alberta
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HIGHWOOD STORAGE AND DIVERSION PLAN
REVIEW OF PROGRESS TOWARD MEETING BOARD ORDER 9601-1

NRCB Application #9801

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1 Introduction and Background

In 1998, a previous NRCB/CEAA Joint Review Panel completed its review of the Little Bow Project/Highwood Diversion Plan proposed by Alberta Public Works, Supply and Services (now Alberta Transportation). This review resulted in provincial approvals for three of five components of the application: the Little Bow River Reservoir; the Highwood River diversion works and a canal to the Little Bow River; and a diversion of water from Mosquito Creek to Clear Lake. The two other components of the application included the Highwood Diversion Plan and the potential expansion of offstream storage at Women's Coulee (Figure 1), but the Panel deferred a decision on off-steam storage and the diversion plan during low flow periods in order to obtain further information.

The additional information required by the Panel to address the outstanding technical, social, economic and environmental issues related to the storage proposal and to develop an operating plan for low flow periods in the Highwood basin was detailed in Board Order 9601-1. Three requirements were identified:

- a reassessment of the instream flow needs (IFN) for the Highwood River;
- additional information on the feasibility of flow augmentation in the Highwood River through offstream storage. This was to include a more detailed assessment of the Women's Coulee site, as well as a comparative analysis of this site and alternative storage sites including Tongue Creek and Stimson Creek (see Figure 1), among others; and,
- a revised diversion plan to address instream and consumptive needs during low flow periods.

The Board Order required Alberta Transportation to report back to the Panel with the specified information within 12 months.

In March 2000, the current Joint Review Panel (the Panel) was subsequently established under the *Natural Resources Conservation Board Act (NRCBA)* and the *Canadian Environmental Assessment Act* (*CEAA*) to consider offstream storage and the diversion plan during low flow periods, including new information. On April 19, 2000 the Panel held a public meeting to consider a request to extend this deadline and to consider other issues raised by participants. In its subsequent report (June 2000), the Panel agreed to Alberta Transportation's request for an extension to March 2002.

At that meeting, a number of parties, including the Government of Alberta, suggested that the examination of storage sites would best be conducted within the context of Phase 1 of the Highwood Management Plan (HMP) being proposed by Alberta Environment. The Panel accepted this suggestion, provided this was done in a timely way. The Panel also accepted that Alberta Transportation's role in the Highwood planning process would be to provide technical reviews and information on storage options. In addition, the Panel confirmed that Alberta Transportation would be responsible for submitting an application for offstream storage to the Panel, if the results of the HMP confirmed that storage was required, and for submitting a revised diversion plan.

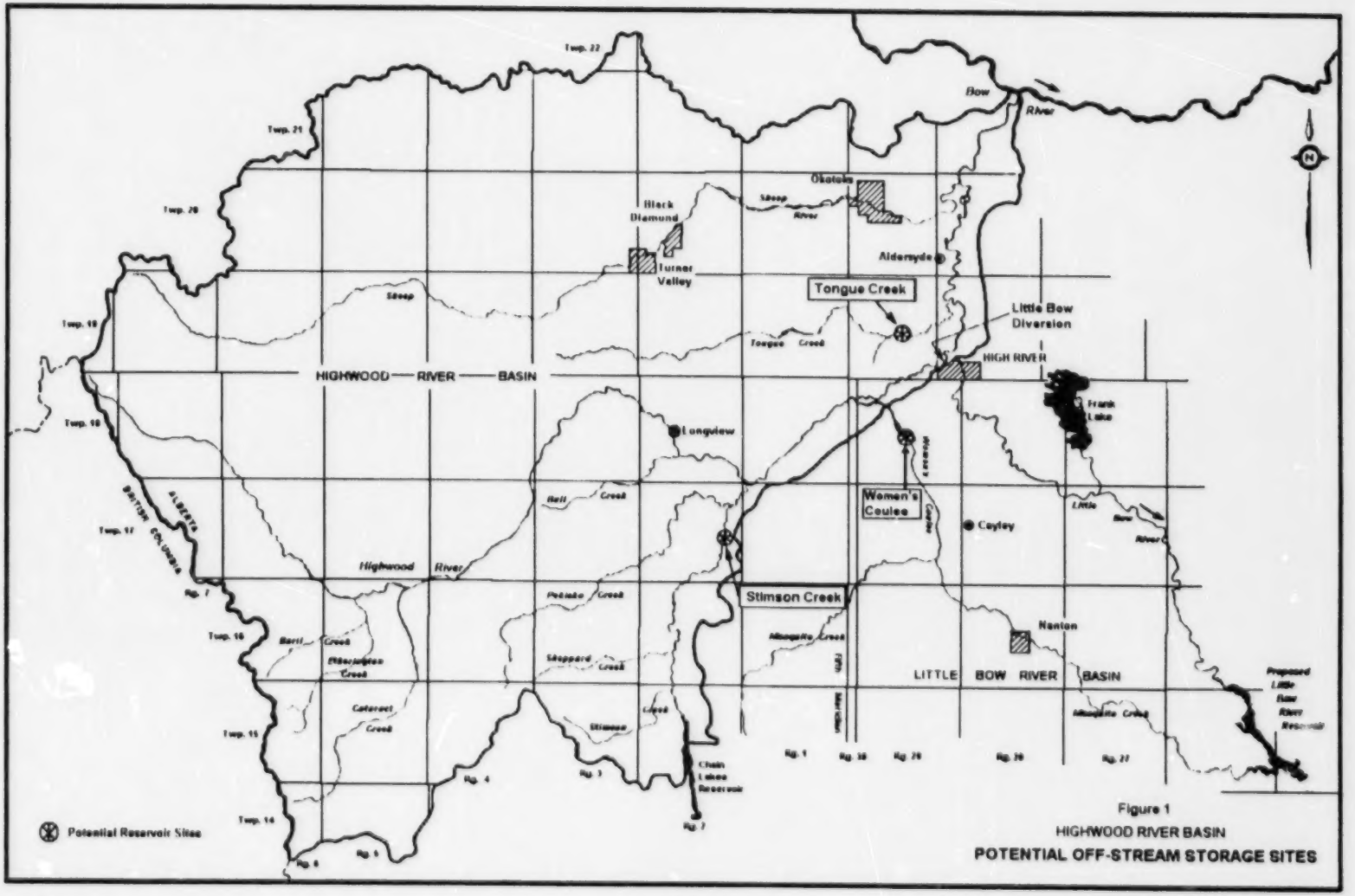

Figure 1
HIGHWOOD RIVER BASIN
POTENTIAL OFF-STREAM STORAGE SITES

On November 22, 2000 the Panel held a second public meeting in High River. Alberta Environment and Alberta Transportation described their progress in developing a coordinated schedule for completing Phase 1 of the HMP, including an assessment of non-storage options and an assessment of the three proposed storage sites, under the direction of a Public Advisory Committee (PAC). While the Panel generally supported this approach, it remained concerned about whether the work program could be completed by March 2002. To help ensure that the work program would be completed by this time, the Panel asked the two departments to publicly file monthly progress updates. The Panel also suggested that Alberta Transportation undertake a "fatal flaw" analysis to determine whether one or more of the three storage sites could be eliminated from further analysis on technical grounds, so that detailed investigations of a preferred site could be completed by March 2002. The Panel proposed holding a third public meeting in June 2001.

The third public meeting was held in High River on June 2, 2001 to address progress on Phase 1 of the HMP and on meeting Board Order 9601-1, and to review Alberta Transportation's "fatal flaw" analysis of the three sites. The Panel also asked interested parties to address four questions:

1. Are you comfortable with the planning process that has evolved to address the issues surrounding the possibility of diversion and offstream storage?
2. Do you think this process is moving at an appropriate speed?
3. Do you see any role for the Panel in this process?
4. When should the Panel hold its next meeting?

This report provides a summary of the results of that meeting.

2 Views of the Parties

The Panel received oral and/or written presentations from various parties, and their respective viewpoints are summarized below.

2.1 Alberta Environment

Alberta Environment reported on the status of the HMP and provided a revised schedule that suggested that Phase 1 of the HMP could still be completed by March 2002. The department stated that it is still committed to full consultation and has provided the PAC with a wide variety of information, copies of which were provided to the Panel. It has accepted nearly all of the components of the proposal for conducting the PAC and has allocated $100,000 for PAC related costs, including facilitation, technical experts, administration and communications. Alberta Environment noted that PAC progress to date has been slow, but believed that all the elements were in place to allow its work to be completed by the March 2002 deadline. One of the key tasks of the PAC would be to complete a comprehensive and realistic assessment of non-storage options. Alberta Environment indicated that a scoping report for this work has been submitted for PAC review. The department submitted that, by November 2001, the PAC will have completed its assessment of water management options and it suggested that this would be an opportune time for the Panel to hold its next hearing. Alberta Environment noted that, once the PAC does develop a recommended diversion plan, the department would review it, and then provide its comments when the proposed plan is submitted to the Panel.

Alberta Environment also advised the Panel that it has just begun the process of developing a Water Quality Protection Plan for the Little Bow River reservoir, and that this would be

completed as part of a watershed protection plan for the Little Bow/Mosquito Creek watershed, possibly including Clear Lake and Frank Lake. The department has approached the water users associations in the watershed and has determined that a collaborative approach over a long period of time is necessary. It plans to hold further discussions with other water users, including municipalities and industries. The department intends to base the plan on best management practices and indicated that it could take many years to develop and implement this plan. Bearing in mind the April 2003 filling date for the new reservoir, Alberta Environment indicated that it would determine the critical dates for development of the water quality protection plan but it would target the major water quality problems first. It promised to provide a more detailed description of the planning process at the Panel's next meeting.

2.2 Alberta Transportation

Alberta Transportation reported that, following the recent reorganization of government departments, it was now responsible for the construction and rehabilitation of provincially owned water management infrastructure. As such, it was now responsible for meeting the requirements of Board Order 9601-1 and the conditions of approval for the Little Bow project.

In reporting on the status of the "fatal flaw" analysis, Alberta Transportation reported that its approach was to study the various sites until it was obvious that, because of one or more factors, one or more sites were economically, socially or environmentally infeasible. Initial environmental studies on the three sites have been completed, and have been circulated to the PAC for validation and review. However, based on the analysis to date, neither Alberta Transportation nor its consultants have been able to identify an obvious flaw for any of the three sites. It reported that its next approach would be to try to rank the three sites, using weights and rankings developed in consultation with the PAC. In addition, the department was planning to undertake additional geotechnical, engineering, environmental, economic and water balance modeling studies of all three sites to assist in determining whether one of more of the sites was unsuitable. Alberta Transportation acknowledged that it is responsible for determining whether any of the sites is fatally flawed. However, it sought the advice and direction of the Panel in helping them develop the criteria needed to evaluate the three sites.

The department noted that it has been having difficulties obtaining landowner permissions to conduct geotechnical investigations at some of the sites. Some landowners have refused to grant permission because of differences in opinion about the extent of environmental and other studies that need to be completed before one or more sites can be dropped from further analysis.

Alberta Transportation expressed support for establishing a PAC and having a single public consultation process for the HMP and the investigation of alternative sites. It noted, however, that there have been some problems with this approach. For example, the normal issue scoping exercise was not undertaken before the initial environmental studies were completed and this may affect public acceptance of the results. In addition, summer field investigations may not be completed at some sites because of difficulties securing landowner permission, so Alberta Transportation may not be able to provide comparable data for each of the sites. Should land access problems not be resolved in the near term, Alberta Transportation warned that its eventual "fatal flaw" analysis might be incomplete or inaccurate. Nevertheless, the department has committed to providing the comparative analysis of the three sites by March 2002. It would also

be able to provide a revised diversion plan, with or without storage, by the March 2002 deadline as long as the PAC is able to determine the need for storage prior to that time.

In terms of the IFN work, Alberta Transportation noted that this work was taking longer than initially planned because the analysis was broadened to consider the range of flows necessary to maintain channel structure. While a draft report on the ecosystem requirements for water was prepared in May 2000, it noted that the report on channel structure would be completed in June 2001 and an integrated final report would be available in October 2001. Alberta Transportation indicated that the draft report on channel structure would be made available for public review in July 2001 and that it was prepared to release the results of the physical habitat modeling, as had been requested by several interveners.

Alberta Transportation suggested that the Panel conduct its next public meeting in November or December of 2001 at which time it would be better able to assess whether the March 2002 deadline is achievable.

2.3 PRAXIS

Mr. Richard Roberts of PRAXIS provided an update on the status of the Public Advisory Committee (PAC) and noted that some individual members of the PAC would be making separate submissions. He reported that the PAC was still an unofficial committee pending resolution of the roles of key members versus alternates and the selection of an appropriate decision making process. Despite its "unofficial" status, Mr. Roberts reported that the PAC was keeping minutes and summaries of its meetings, and copies of these were provided to the Panel.

As the PAC facilitator, Mr. Roberts indicated that he thought that the PAC was composed of the right people and that some progress was being made on two fronts: the selection of a mediator/facilitator, and the development of subcommittees to deal with the "fatal flaw" analysis. Although the PAC's work schedule for the summer months had not yet been determined, he expected that this would be solidified once the new mediator/facilitator was selected, and this was expected to occur at the next PAC meeting.

Mr. Roberts also reported that a key activity completed by the PAC was to have each group develop a vision statement for future water management in the Highwood basin. Copies of this information were also provided to the Panel.

2.4 Morris Walsh

Mr. Morris Walsh is a Tongue Creek landowner whose house is situated about 100 metres from the proposed reservoir. He raised questions about the economics of water storage, specifically with respect to the proposed Tongue Creek site. He indicated that he had sought data on the economics of storage at a previous Panel meeting and questioned whether this information was available yet, since it would be helpful in identifying whether one of more the sites was fatally flawed.

Mr. Walsh provided his own assessment of the costs of storage at the Tongue Creek site. By updating the results of previous studies and using his experience as road builder, Mr. Walsh predicted that the cost of storage at Tongue Creek in 2001 dollars was on the order of $60 million, or about $6000 per acre-foot of storage. He suggested that this cost was five or six times

what is considered to be a reasonable cost for storage and, given the poor returns from grain farming, he questioned how this project could ever be economically viable. Because of the high cost of offstream storage, Mr. Walsh suggested that it might be appropriate to re-evaluate options for storage on the Highwood itself.

Mr. Walsh also expressed concern about the quality of the draft environmental review of the three sites being prepared for Alberta Transportation. He concluded that, if the intent of the work was to find a fatal flow in one or more of the storage sites, work to date had missed some fairly obvious flaws for the Tongue Creek site and contained some significant errors. He identified these as being: Western Feedlots' intensive livestock operations and the potential impact these could have on water quality in the reservoir; the regional landfill site was incorrectly located; there is nothing in the report about project economics; and, there are geotechnical concerns because of the 40 feet of overburden at the proposed dam site. Mr. Walsh concluded by asking the Panel to direct Alberta Transportation to cease investigation of storage at the Tongue Creek site because it is fatally flawed and it would be a waste of time and money to continue studying this particular option.

2.5 Fisheries Coalition

The Fisheries Coalition, as represented by Mr. Alan Harvie, stated that Alberta Transportation and Alberta Environment must come forward with a revised diversion plan if the Highwood - Little Bow project is to be operated in low flow periods, with or without storage. It noted that the default operating guidelines would be inconsistent with the Federal Fisheries Act and the Policy for the Management of Fish Habitat. The Fisheries Coalition requested that the Panel amend Board Order 9601-1 to order Alberta Transportation to submit an application for a revised diversion plan and to describe when and how this plan will be developed.

The Coalition stated that there has been slow progress in completing Phase I of the HMP and suggested that real progress could be made if stakeholders were to promptly receive the revised IFN and a "fatal flaw" analysis of the three storage sites. Consequently, it asked the Panel to require the Alberta Government to disclose the IFN work completed to date and its initial "fatal flaw" analysis. It also asked the Panel to encourage the federal Department of Fisheries and Oceans to provide direct support to the PAC and suggested that the Panel hold its next meeting in September 2001.

2.6 Western Feedlots Ltd.

Western Feedlots Ltd. has a 4300-acre, 32,000-head feedlot located 5 miles west of High River. It produces about 60 per cent of its silage from 550 acres of irrigated land and 1450 acres of cultivated dryland, with the remainder coming from local farmers. Its manure management program involves spreading on 7500 acres plus a sprinkler irrigation system for a manure run-off pond. Western Feedlots noted that the proposed inlet canal for the Tongue Creek site is located within 100 metres of the centre pivot for the effluent irrigation system. As such, the company feels that its operations represent a serious threat to contaminate canal water on days when the irrigation system is active. Furthermore, if restrictions were to be placed on its irrigation activities, Western Feedlots was concerned that its effluent storage pond might overflow and this could lead to an uncontrolled release of effluent into Tongue Creek.

The company noted that the existence of its feedlot and the potential influence that it might have on the Tongue Creek site has not been addressed in the draft environmental assessment being prepared by AXYS Environmental Ltd. on behalf of Alberta Transportation. It submitted that the environmental assessment must consider the potential implications of Western Feedlots' operations on water quality at the Tongue Creek site, and should also identify whether there are other operations upstream on Tongue Creek, that might also impact the effectiveness of that site, such as Roseburn Ranches. Western Feedlots stated that, if a reservoir is developed at the Tongue Creek site, it cannot and should not be held responsible for water quality problems.

The company concluded that, because the studies have not recognized the potential problems posed by its operation, it is not comfortable with the process being used to identify the preferred water storage sites in the Highwood basin. It supported the use of a "fatal flaw" analysis to exclude sites from further analysis, but advocated that such an analysis involve full technical assessments. The company also expressed concern that the necessary environmental and geotechnical assessments could not be completed because some landowners were refusing to grant land access to Alberta Transportation.

2.7 Baker Creek, Intake Canal and Woman's Coulee Coalition

Mr. Stephen Evans updated the Panel on an impasse that has evolved between Alberta Transportation and the Coalition over the matter of field studies at the Women's Coulee site. Members of the Coalition have refused to grant land access for fieldwork until such time as Alberta Transportation agrees to conduct comprehensive and detailed assessments of groundwater and soil salinity at the three sites. However, Mr. Evans noted that Alberta Transportation has only committed to a preliminary investigation of soil salinity and that detailed studies would not occur until such time as a preferred site has been selected. Consequently, the Coalition has not granted land access.

To resolve this impasse, Mr. Evans suggested that the two parties negotiate an agreement on this issue. He asked the Panel to set a deadline of July 1, 2001 for Alberta Transportation and the affected landowners to resolve their differences. He noted that such an agreement would allow field studies to occur during the summer months.

2.8 Women's Coulee, Baker Creek and the Intake

Ms. Jacqueline Nelson indicated that, although this group was supportive of the establishment of a PAC, it was frustrated by the PAC process. She noted that the lack of a clear decision making process or procedural guidelines, the selection of a new facilitator, and the limited understanding of the broader range of water management issues for the Highwood basin have been impediments to the PAC process. The group suggested that PAC members required more education about these issues if they were to move beyond just protecting their own interests.

The group offered several suggestions regarding how the PAC could move forward. These included the development of a common vision statement that supports the HMP and PAC participation in tours to key locations in the basin. The group also suggested that the PAC be given specific deadlines but adequate time for the discussion of key documents and technical reports. And, although PAC has to date been asked to review numerous documents, it was still waiting for the IFN study.

This group expressed concern about the timing of the "fatal flaw" analysis. It argued that the need for off-stream storage should be determined prior to selecting a preferred storage site. It recognized the importance of field studies as long as the PAC had the opportunity to review the results of these studies within its own timeline. The group suggested that the March 2002 deadline be extended to allow the new facilitator to become familiar with the issues and to provide sufficient time for the PAC to make valid and informed recommendations on the HMP. It also recommended that the Panel hold another meeting in January of 2002. This meeting would be dependent on Alberta Environment and Alberta Transportation continuing to provide monthly progress reports and the Panel holding the two departments accountable for their actions.

2.9 Tongue Creek Residents

Colin Dumais, speaking on behalf of residents in the Tongue Creek area, questioned why storage was still being considered for the Tongue Creek site. He sought clarification as to which organization was responsible for determining whether a site would be eliminated from further consideration and the criteria to be used to make this determination. He noted that there is some confusion regarding whether this responsibility lies with Alberta Transportation, the NRCB or the PAC, and he reported that some area residents already believe that the Tongue Creek site had been eliminated because of its high social impact. Mr. Dumais stated that development of the Tongue Creek area is continuing, with the result that the potential impacts of a reservoir at that site are growing significantly over time. He recommended that, if a site is obviously flawed, it should be eliminated from further consideration so that available resources can be committed to completing the comparative analysis of the other two sites. He argued that Tongue Creek residents support dropping this site from further consideration, as per the suggestion originally made by the counsel for Alberta Transportation more than one year ago.

In terms of the March 2002 deadline, Mr. Dumais indicated that Tongue Creek residents were not in favour of any additional extensions. He noted that the two government departments still maintain that the studies can be completed by March 2002, and he would like the Panel to confirm this deadline for the two departments and to ensure that they meet this schedule.

Mr. Dumais stated that the role of the PAC needs to be better defined so that individual members can use their available time most effectively. He argued that the PAC should not be taking on the government's responsibility for completing the HMP and the associated public consultation. Of particular concern to the Tongue Creek residents is the PAC's role with respect to the "fatal flaw" analysis. He believed that the responsibility for eliminating one site or another belongs to Alberta Transportation, and argued that it was not fair to ask the PAC to make this decision.

2.10 Little Bow Public Advisory Committee and Clear Lake

Mr. Glen Roemmele stated that he has been involved with the Little Bow PAC for 18 years and that this process was much too long because of all the stress on people who may be affected by a proposed reservoir development. He indicated support for water storage in southern Alberta, particularly in dry years such as this, and argued that the benefits of improved water quantity and quality outweigh the costs. Mr. Roemmele suggested that the main question was which of the three storage sites is best, and supported getting all the information together before deciding that one or perhaps two storage sites may be required to meet demands. He noted that, without storage, someone will have to decide which of the users, including instream needs, will have to go

short in low flow times. He concluded by saying that, once the PAC has made its recommendations and there are still some people who disagree with the choice of site, it will be up to the Panel to make an unbiased decision that reflects the bigger picture.

2.11 Karin Dumais

Ms. Dumais expressed frustration that Tongue Creek is still being considered for reservoir development, even after the proponent stated concerns about its high social impact more than a year ago. She reported that the current draft of the "fatal flaw" analysis being developed for Alberta Transportation still contains significant errors and is incomplete, despite her having raised these concerns previously. Ms. Dumais noted that, for the assessment of the Tongue Creek site, the report did not adequately address issues related to intensive livestock use of adjacent lands, the social impacts of road closures, or the impacts on landholdings of less than 20 acres.

She presented her own analysis and concluded that, in comparison to the other sites, Tongue Creek is flawed because it is smaller in size, costs more per acre-foot of storage, and would affect the greatest number of landowners. Ms. Dumais noted that these were three of the six criteria for selecting storage that had been identified by the Panel in its 1998 Decision Report. She also argued that Alberta Transportation ought to be determining which storage site is best, since it would be seeking approval for that site. She believed that site selection should not be the responsibility of the PAC, which could then better spend its time on other issues.

Ms. Dumais requested that the Board provide more and clearer direction with respect to responsibility and accountability for specific studies and decisions, and to establish consequences for failure to comply. With respect to the "fatal flaw" analysis, she asked that Alberta Transportation be given the authority to remove a site from further consideration and she sought establishment of criteria that would facilitate making this decision. She also requested that this decision be made promptly so that the people of Tongue Creek no longer have to deal with the stress associated with uncertainty over future development of the area.

2.12 Stimson Creek Conservation Association

Mr. Harvey Gardner made a presentation on behalf of the Stimson Creek Conservation Association (SCCA). The SCCA offered various reasons why a water storage reservoir at Stimson Creek would be inappropriate. It argued that the public interest lies in protecting the watershed for both the ranchers and recreational users. It believes that storage on Stimson Creek would result in additional losses of productive natural ecosystems that have already been compromised by the creation of the nearby Chain Lakes reservoir. It questioned the economics of storage, especially in dry years, since there would be little or no flow into the reservoir, and also asked how the benefits and costs would be distributed between local residents and the downstream water users. The SCCA also suggested that the tourist potential of Highway 22, which is becoming increasingly important to the area, would be compromised by slumping, dust and reduced aesthetic conditions when the reservoir is drawn down. In the opinion of SCCA members, storage at the Stimson Creek site makes no sense in environmental or economic terms.

The SCCA also expressed reservations about the effectiveness of the PAC process. Based on previous experience with similar processes, it is concerned that the PAC members will spend a considerable amount of time to develop recommendations that will be ignored. It proposed

adopting the approach used by the energy industry for gaining access to land for field studies whereby the government would negotiate access agreements and compensation with individual landowners. Once these agreements are in place, the SCCA suggested that PAC members might be better able to discuss their concerns more easily.

2.13 The M.D. of Foothills

Mr. Garret Top indicated that he was looking forward to having the PAC work on addressing issues and that some progress had been made to date.

2.14 Phyllis Pope

Ms. Pope, a landowner in the Highwood basin, raised four questions and/or issues that she wanted to be addressed. These included: the status of the report on the IFN for the Highwood River; water supply and demand information has not been addressed; the economic feasibility has not yet been proven; and why have the Hutterite colony and other people been forced to relocate before the water supply has been secured. She indicated that these questions needed to be addressed before the Panel should consider holding another meeting.

2.15 Lower Highwood Water Users' Group

Mr. Gerald Porter spoke on behalf of the Lower Highwood Water Users' Group and expressed some concern about the PAC process and the rate at which it was proceeding. He stated that, at this stage in the process, concern about individual issues was taking precedence over the common concerns for the Highwood basin, and that the process was too focused on technical and scientific issues. He advocated the development of a long-term plan that could be developed in phases as the years go on. He supported the need to maintain the March 2002 deadline and suggested that the Panel intervene to ensure the process meets this schedule. He acknowledged the Panel's continued representation at the PAC meeting and suggested that the Panel hold another meeting in November or December.

2.16 Orville and Linda Norstrom

The Norstroms are Tongue Creek landowners who submitted a letter requesting prompt resolution of whether storage would be constructed at that location. They were unclear about how much of their property would be directly affected by a reservoir at that site, but understood that their lands would be split. They raised questions about who would benefit from the project, whether storage at this site was economically viable, whether the project will ensure that water use is sustainable, and who was responsible for ensuring that process deadlines are met.

The Norstroms indicated that delays in making a decision about the Tongue Creek site were causing considerable stress on the lives of those people who could be affected by development at that location. While they have allowed the government access to their lands for completing an assessment, they reported that they are seeking a private assessor to provide them with a second opinion.

2.17 Lower Mosquito Creek Water Users Association

A letter prepared by Ms. Diana Andrews, chair of The Lower Mosquito Creek Water Users Association (LMCWUA) was submitted to the Panel. In the letter, Ms. Andrews noted that the LMCWUA was not comfortable with the PAC process for several reasons. She noted that the

representatives of government departments have changed many times over the past several months. This has resulted in PAC members receiving misinformation because the new representatives lack knowledge of the project and past events. She was also concerned that the PAC was confused and proceeding slowly because there is no one in charge of the process and there is a preoccupation with the "fatal flaw" analysis. This has caused some PAC members to focus only on protecting their own interests and not on the development of the basin management plan.

Ms. Andrews stated that the PAC process may speed up with the selection of a new facilitator, but she questioned whether the recent delays would allow the March 2002 deadline to be met. While recognizing the importance of developing a diversion plan to meet the filling deadline for the new Little Bow River Reservoir, Ms. Andrews was concerned that this should not take precedence over preparing the best management plan for the Highwood, Little Bow and Mosquito Creek basins.

Ms. Andrews suggested that the Panel could assist the PAC by providing its view of the role of the NRCB and the PAC in the HMP. She concluded that the questions of roles, responsibilities and accountability needs to be clarified if the PAC is to be effective, and she urged the Panel to hold its next meeting as soon as possible to address and resolve outstanding issues.

2.18 Ms. Anita Buchan

Ms. Buchan, a resident of the Tongue Creek area, submitted a letter to the Panel in which she expressed dismay that this site was still being considered as a storage site after she had pointed out various flaws with the site at the Panel's April 2000 meeting. She noted that the delay in making a decision on a storage site was causing considerable hardship for her and other residents of the area.

2.19 Municipal District of Willow Creek

Mr. Ian Sundquist, a councillor for the M.D. of Willow Creek and a member of the Highwood PAC, expressed his support for using a PAC to address water management issues for the basin. Part of his role on the PAC will be to represent the interests of the Little Bow Water Users Association and the Clear Lake Water Users Association. He reported that, although the process has been slow to develop, he expected that it would move more quickly once the PAC members better understand their respective objectives and are prepared to compromise on how to best share Highwood River water. He hoped that the required work could be achieved as expediently as possible.

2.20 Upper Little Bow Basin Water Users Association

Ms. Shirley Pickering, a representative of the Upper Little Bow Basin Water Users Association, submitted that the PAC was having problems because of the concerns about sites for water storage. She argued that, until some PAC members are educated about the broader issues of water management in the Highwood and Little Bow basins and look beyond local storage-related issues, the process would be at an impasse. Ms. Pickering suggested that the PAC would not move forward until it has developed a work plan that is integrated with the work schedules of Alberta Environment and Alberta Transportation, and she sought clarification of the time frame in which the work is to be completed. She also asked the Panel to clarify what would happen if the PAC were to fail to prepare a management plan for the Highwood basin.

Ms. Pickering also raised concerns about the need to develop an HMP that addressed the water demands of the soon-to-be-completed Little Bow project. She argued that using the 1994 Operation Guidelines as an interim measure would not be adequate because these guidelines are unclear with respect to conveyance flows and irrigation licence requirements on the upper Little Bow River. For this reason, she supported having the PAC process move forward to meet an established schedule and deadline.

She asked that the Panel continue to provide observers to the PAC meetings and suggested that the next Panel meeting be held before the winter, probably in November.

3 Views of the Panel

Much of the information presented at the meeting described the status of the HMP and the progress of the PAC, but a number of interveners also raised issues they wanted addressed by the Panel. In general, these issues related to the respective roles of the Alberta government, the PAC and the Panel in regard to the HMP-related work and to various aspects of Board Order 9601-1. It is apparent to the Panel that further and immediate clarification of these roles and responsibilities is required if an application for a revised diversion plan, is to be submitted by the March 2002 deadline.

In responding to these issues, the Panel reiterates that its role is not to direct the HMP; the HMP is the responsibility of Alberta Environment in collaboration with the PAC. The Panel's role is limited to those areas that fall within its jurisdiction, namely the requirements of Board Order 9601-1 and the eventual application from Alberta Transportation. However, since the results of the HMP will be ultimately be used to address some of the requirements of the Board Order, the Panel is interested in ensuring that Phase 1 of the HMP is completed by March 2002 and it is prepared to offer recommendations to help ensure that this occurs.

The Panel acknowledges the value of having public advisory bodies support government planning and project development, and it heard general support for this approach, especially in the context of the water development in the Little Bow basin. At the same time, the Panel is aware of the difficulties in having an advisory body move ahead quickly and effectively, especially while its role and responsibilities are being defined. The Panel heard considerable evidence that the PAC for the HMP has made relatively little progress to date, although most members are optimistic about future activities. Some presenters also raised concerns about the ability of the PAC to effectively address all of the technical issues in the nine months prior to the existing March 2002 deadline. Still others argued that it would not be in the public interest to allow extensions to this deadline because of the adverse impact this would have on landowners adjacent to proposed storage sites.

The Panel believes that time is of the essence if it is to receive an application for a revised diversion plan from Alberta Transportation and conduct a full public review before the Little Bow Project starts filling in 2003. Therefore, the Panel has concluded that it is now critical to clearly separate the roles of the PAC from those of Alberta Transportation and Alberta Environment with respect to the need for storage and the selection of the most appropriate site for storage. This will allow the PAC to focus on and complete those aspects of the HMP that

will allow Alberta Transportation and Alberta Environment to successfully address the requirements of Board Order 9601-1 by the March 2002 deadline.

3.1 The Need For Storage

One question that has been raised at all Panel meetings since the release of the 1998 decision report was whether it was premature to be selecting a preferred storage site when the need and requirements for storage have not yet been determined. At this meeting, there was concern that PAC was being asked to simultaneously examine non-storage options and develop criteria for comparing alternative sites. This apparent conflict in direction was identified as one of the obstacles that were preventing the PAC from progressing more quickly and effectively.

The Panel notes that the need for additional storage was clearly identified in the previous Joint Review Panel's May 1998 decision report:

> "The Panel concludes that storage is the preferred option for resolving currently unsustainable water management practices in the Highwood basin. The Panel believes that the first priority for consideration of storage for the basin is to remediate the current over-allocation of water during low flow events." (p. 4-45)
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> "Having accepted the need for additional storage for the Highwood basin to meet current water demand, the Panel adopts a perspective that a series of storage opportunities may ultimately be needed in the basin over the long term to meet future water demand." (p. 8-15)

The previous Panel, which approved Application 9601, clearly believed that more storage in the basin was inevitable and that a series of storage options might eventually need to be considered to address current and future demands. That is why an assessment of alternative storage sites was specified in Board Order 9601-1.

While the current Panel has, as yet, seen no evidence that refutes the conclusion about the need for additional storage, it recognizes that non-storage options could play a role in addressing water demands for the basin. As stated in its previous reports, the Panel encourages the PAC to investigate the potential for non-storage options and is pleased to see that the terms of reference for a study on non-storage options are being developed. The Panel believes that pursuing effective non-storage options may allow deferral of some additional storage requirements, could provide some additional flexibility within the HMP, and should result in the development of a diversion plan that optimizes the use of available water resources.

Although non-storage options may play some role in future management of the basin, the Panel is not prepared to further postpone the evaluation of potential storages sites. It continues to expect that storage will ultimately be required to address water shortages in the basin and, given that filling of the new Little Bow River reservoir is slated to commence in 2003, the Panel has concluded that Alberta Transportation must continue its investigations of storage if a revised diversion plan is to be developed and reviewed in a timely fashion. Thus, the Panel expects Alberta Transportation to complete its review of alternative sites as quickly as possible so that the results of this analysis will be available in advance of the March 2002 deadline.

3.2 The "Fatal Flaw" Analysis

In its December 2000 report, the Panel suggested "it would be very helpful if Alberta Infrastructure conducted a 'fatal flaw' type of analysis on the three potential storage sites prior to March 2001". This request was made to ensure that Item 5 of Board Order 9601-1, pertaining to the comparative analysis of potential storage sites within the Highwood basin, could be completed in a timely fashion.

Many interveners offered comments on the "fatal flaw" analysis. Alberta Transportation indicated that, based on its environmental analysis to date, it had been unable to identify an obvious "fatal flaw" for any of the three sites under investigation, but would continue this work by undertaking additional geotechnical, environmental, engineering and economic studies and would seek guidance from the PAC on the weights and rankings that could be used to identify a preferred storage site. Some interveners argued that the "fatal flaw" analysis was hampering the PAC process because some members were too focused on the selection of storage sites, rather than on basin-wide issues. Others argued that the studies being undertaken to identify a "fatal flaw" were incorrect in terms of basic information or were inadequate, in that issues like construction costs, water quality and land use issues, and impacts on local residents had not yet been considered.

The Panel notes that Board Order 9601-1 calls for a comparative analysis of potential storage sites as part of the completed assessment of the Super Expanded Women's Coulee reservoir. The previous Panel had concluded that Women's Coulee[1] was likely the best location for additional storage in the Highwood basin:

> "From the evidence currently available to the Panel, it appears that Squaw Coulee is the best single site for creating storage in the Highwood basin, taking into consideration storage capacity, location, environmental effects, cost, and water management flexibility. The major drawback with the Super Expanded Squaw Coulee Reservoir, as identified by the various interveners, was its social and environmental impacts." (p. 4-52)

The intended purpose of the comparative analysis required in Board Order 9601-1 was to challenge Alberta Transportation to determine whether some site other than Women's Coulee might offer an equivalent amount of storage with fewer adverse environmental, social and economic impacts.

The Panel believes that this comparative analysis does not require a detailed assessment of each site. In suggesting a "fatal flaw" analysis, the Panel was seeking a summary evaluation that would quickly establish the relative merits of each possible site. The Panel was not asking Alberta Transportation to identify one single factor that might preclude development at any particular site, but rather to determine whether there might be a combination of factors that would establish the inferiority or superiority of that site relative to the Women's Coulee site.

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[1] Women's Coulee was formerly named "Squaw Coulee" and this name was used in the Panel's 1998 decision report.

Therefore, in order to facilitate completion of the comparative evaluation of alternative storage sites as per the Board Order, the Panel requires Alberta Transportation to complete its comparative assessment of the Stimson and Tongue creek sites to the Women's Coulee site and submit it within 60 days of the date of issuance of this report. Issues related to potential water quality effects and project economics were raised at the June 2nd meeting and the Panel requests that Alberta Transportation address these and other pertinent factors in comparing these three sites. The Panel suggests that Alberta Transportation continue to work with representatives from the three sites in order to ensure that an accurate portrayal of probable impacts is generated. The Panel expects that, as a result of the analysis, Alberta Transportation will be able to recommend which of the three sites would form the basis for any subsequent application to the Panel for a diversion plan with storage.

Upon receipt of the comparative analysis and after allowing an appropriate period for public review, the Panel will then call a public meeting. The purpose of this meeting will be to provide opportunities for interveners to comment on the results of the analysis and to submit their own views on the relative advantages of the three sites. Following the meeting, the Panel will make a decision concerning the most appropriate site or sites for foreseeable development of storage within the Highwood basin. By having the Panel make this decision, it believes that the PAC will be able to focus its attention on the basin management plan. Alberta Transportation can then focus its work efforts on preparing a detailed assessment of the chosen option.

3.3 Instream Flow Needs

The Panel heard that the revised IFN has not yet been completed. Alberta Transportation indicated that, although the fish habitat component of the IFN had been completed, additional work was being undertaken to assess the flow requirements for maintaining the river channel. A draft of this work was to be completed in June 2001, with finalization of the report by October 2001. The Fisheries Coalition argued that understanding of the water requirements for the IFN was essential if the PAC was to understand the full range of water demands in the basin, especially during low flow periods. The Coalition and other interveners requested that a draft of the IFN work completed to date be released as soon as possible.

The Panel supports the idea that key information relevant to the development of the HMP should be made available to the PAC as soon as possible, even if it is in draft form. In the course of preparing this report the Panel has been informed that Alberta Transportation has, in fact, already provided the PAC with copies of the draft IFN report containing the modeling results that establishes the relationship between flow and fish habitat requirements and draft copies of the analysis of flow requirements to maintain the channel morphology. The Panel strongly supports this continued trend of providing information to the PAC as quickly as possible.

3.4 Access to Land

Various interveners discussed the impasse that currently exists over Alberta Transportation gaining access to private property in order to undertake studies in support of its comparative site assessments and the detailed assessment of the Women's Coulee site. Some landowners are refusing to give access until Alberta Transportation agrees to undertake comprehensive and detailed studies on groundwater and soil suitability. Alberta Transportation has committed to undertake such detailed assessments only after a preferred site is selected.

As noted above, the Panel has concluded that detailed investigations of each site are not required at this time. However, in order to comply with the requirements of Item 3 of Board Order 9601-1 pertaining to completing the economic, social and environmental assessment of the Women's Coulee Site, the Panel expects Alberta Transportation to commence its detailed site investigations as soon as possible. In doing so, the Panel expects that Alberta Transportation will engage in appropriate consultations with landowners regarding the nature of the work to be completed and the terms of land access. The Panel also is prepared to offer NRCB staff to facilitate a settlement between Alberta Transportation and landowners, if requested, in order to ensure that the appropriate site investigations are undertaken in a manner that best accommodates the interests of all parties.

3.5 The Diversion Plan

One of the issues that arose at the meeting was the lack of clear direction as to the roles of the PAC, the Alberta Government, and the Panel with respect to developing a revised diversion plan.

In Board Order 9601-1 the previous Panel ordered Alberta Transportation to prepare and submit a revised diversion plan as part of a subsequent application. Thus, responsibility for submitting the plan clearly rests with the Alberta Government, which has chosen to seek the advice of the PAC in developing a diversion plan in the context of the HMP. In the unlikely event that the PAC fails to produce an HMP, the Alberta Government is still obligated to produce the revised diversion plan.

3.6 Water Quality Protection Plan for the Little Bow River Reservoir

Alberta Environment reported that development of the water quality protection plan for the Little Bow River Reservoir and the Frank Lake Water Quality Mitigation Plan are now being completed as part of a broader watershed protection plan for the basin. It also noted that work on this plan had just commenced and that it could take many years to develop a plan and acquire the necessary funding and regulatory tools to implement.

The Panel supports the concept of addressing water quality issues at a basin level. However, it is concerned about conducting a water quality management plan that is somehow separate from the ongoing HMP and would take "many years" to complete. In the 1998 report, the previous Panel noted:

> "The potential multi-purpose benefits associated with the Little Bow River Reservoir will not be adequately realized without clear action to control current or future sources of pollution in the region." (p. 8-24)
>
> "The Panel recommends that the Frank Lake Water Quality Mitigation Plan and the Little Bow River Reservoir Water Quality Protection Plan be developed expeditiously and implemented before the reservoir is filled." (p. 8-25)

The previous Panel made its recommendations with respect to the proposed Little Bow River reservoir on evidence from Alberta Environment that water quality would be addressed as part of the HMP and that an implementation schedule for resolving the water quality issues associated with Frank Lake would be provided in 1998. Although Alberta Environment has not yet addressed these commitments, the current Panel expects that it will continue its efforts to ensure that appropriate water quality protection measures are in place before the new reservoir begins

filling in 2003. At the next meeting, the Panel would like to receive more information about progress on addressing water quality issues in the Highwood, Little Bow and Mosquito basins.

4 Next Steps

Although Alberta Transportation and Alberta Environment provided evidence indicating that a revised diversion plan could be completed by March 2002, many interveners questioned whether this was realistic considering progress to date and the extent of work yet to be completed.

The Panel has not yet received clear evidence showing that this deadline cannot be achieved and will continue to expect all parties to work to meet this schedule. By committing to provide a decision on preferred storage options by December of 2001, the Panel hopes that the PAC will then be able to focus its attention on completing Phase 1 of the HMP, including the development of a diversion plan, within the proposed schedule.

As noted above, the Panel intends to hold the next public meeting in the Fall of 2001 for the purpose of hearing public views on Alberta Transportation's analysis of alternative storage options. At that time it will also seek detailed updates on the work program relative to the March 2002 deadline and to obtain input on whether that deadline can be achieved based on the amount of work remaining.

In the meantime, the Panel expects that Alberta Transportation and Alberta Environment will continue to provide it with monthly progress reports, to be posted on the website of the NRCB (http://www.nrcb.gov.ab.ca) and to be made available to others on request. The Panel will also ensure that NRCB staff are available to attend PAC meetings as observers and to provide technical assistance as required.

DATED at Edmonton, Alberta on 28 June 2001.

Joint Natural Resources Conservation Board/Canadian Environmental Assessment Review Panel

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